

WHAT IS CLAIMED IS:

1. For use with a seismic energy source, a directional
2 assembly, comprising:
3 a mount configured to be coupled to a seismic energy source;
4 a rotatable mass assembly coupable to said mount;
5 a compass rose coupled to one of said mount or said rotatable
6 mass assembly; and
7 a direction reference coupled to another of said one of said
8 mount or said rotatable mass assembly, said compass rose registered
9 with said direction reference to provide a direction orientation of
10 said rotatable mass assembly with respect to said mount.

2. The directional assembly as recited in Claim 1 wherein
2 said compass rose is coupled to said mount and said direction
3 reference is coupled to said rotatable mass assembly.

3. The directional assembly as recited in Claim 1 wherein
2 said compass rose is coupled to said rotatable mass assembly and
3 said direction reference is coupled to said mount.

4. The directional assembly as recited in Claim 1 wherein
2 said direction reference is magnetic north.

5. The directional assembly as recited in Claim 1 wherein
2 said direction reference corresponds with a cross line direction.

6. The directional assembly as recited in Claim 1 wherein
2 said direction reference corresponds with an inline direction.

7. The directional assembly as recited in Claim 1 wherein
2 said compass rose includes a signal transmitter and said direction
3 reference includes a signal receiver.

8. The directional assembly as recited in Claim 1 wherein
2 said compass rose includes a signal receiver and said direction
3 reference includes a signal transmitter.

9. A seismic exploration system, comprising:

a seismic energy source having a support structure associated therewith;

a directional assembly coupled to said support structure and including:

a mount coupled to said support structure;

a rotatable mass assembly coupable to said mount;

a compass rose coupled to one of said mount or said rotatable mass assembly; and

a direction reference coupled to another of said one of said mount or said rotatable mass assembly, said compass rose registered with said direction reference to provide a direction orientation of said rotatable mass assembly with respect to said mount;

receivers located on a terrain; and

a seismic recorder system.

10. The system as recited in Claim 9 wherein said compass rose is coupled to said mount and said direction reference is coupled to said rotatable mass assembly.

11. The system as recited in Claim 10 wherein said compass
2 rose includes a signal transmitter and said direction reference
3 includes signal receivers.

12. The system as recited in Claim 11 wherein each of said
2 signal transmitters are located adjacent an outer circumference of
3 said compass rose and each corresponds to a degree of rotation
4 about said circumference.

13. The system as recited in Claim 10 wherein said compass
2 rose includes a signal receiver and said direction reference
3 includes signal transmitters.

14. The system as recited in Claim 9 wherein said compass
2 rose is coupled to said rotatable mass assembly and said direction
3 reference is coupled to said mount.

15. The system as recited in Claim 14 wherein said compass
2 rose includes signal transmitters and said direction reference
3 includes a signal receiver.

16. The system as recited in Claim 15 wherein each of said
2 signal transmitters are located adjacent an inner circumference of

3 said compass rose and each corresponds to a degree of rotation
4 about said circumference.

17. The system as recited in Claim 9 wherein said compass
2 rose includes signal receivers and said direction reference
3 includes a signal transmitter.

18. The system as recited in Claim 9 wherein said direction
2 reference is magnetic north.

19. The system as recited in Claim 9 wherein said direction
2 reference corresponds with a cross line direction.

20. The system as recited in Claim 9 wherein said direction
2 reference corresponds with an inline direction.

21. The system as recited in Claim 9 further including a
2 direction indicator associated with said direction reference
3 configured to provide data regarding said orientation of said
4 rotatable mass assembly.

22. The system as recited in Claim 21 further including a
2 communication network coupled to said direction indicator

3 configured to transmit said orientation to said seismic recorder
4 system.

23. The system as recited in Claim 9 wherein said receivers
2 are positioned in a crossline and inline grid.

24. A method of orienting a seismic source, comprising:

2 registering a compass rose with a direction reference to
3 orient a rotatable mass assembly of a seismic source with respect
4 to a mount of said seismic source, said compass rose being coupled
5 to one of said mount or said rotatable mass assembly and said
6 direction reference being coupled to another of said one of said
7 mount or said rotatable mass assembly.

25. The method as recited in Claim 24 registering includes
2 registering said compass rose coupled to said mount with said
3 direction reference coupled to said rotatable mass assembly.

26. The method as recited in Claim 24 wherein registering
2 includes registering said compass rose coupled to said rotatable
3 mass assembly with said direction reference is coupled to said
4 mount.

27. The method as recited in Claim 24 wherein registering
2 includes registering said compass rose with magnetic north.

28. The method as recited in Claim 24 wherein registering
2 includes registering said compass rose with a cross line or inline
3 direction.

29. The method as recited in Claim 24 wherein registering
2 includes registering a signal transmitter coupled to said compass
3 rose with a signal receiver coupled to said direction reference.

30. The method as recited in Claim 24 wherein registering
2 includes registering a signal receiver coupled to said compass rose
3 with a signal transmitter coupled to said direction reference.